

# The Making of a Consultant

Or, how I got from there to here

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Doramaxx Consulting

**IDRC 2018**

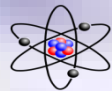
Wednesday, 1 August

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# Everyone Comfortable?

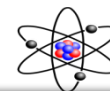


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# The Genesis of a Consultant

- First, let's be honest: no one, as a kid, says, "I want to grow up to be a consultant." Cowboy, firefighter, doctor, astronaut, actor, yes; consultant? Not really.
- We all either plan a different career or just lurch into one.
- The happiness we achieve at "jobs" is Gaussian: about 60% are OK, a smaller number are not real good and a small number (at 3-4 sigma) we really understand, like, and do well.
- Unfortunately, the mental acuity and work ethic that allows a person to be really good at their job will eventually also make them become bored "merely" doing it (for one company)





# The Genesis of a Consultant

- Often, this person finds her/his relief by switching to another position, either in the same or different company.
- Odds are, if a person is really good at this position, too, she/he will become unhappy (bored) again.
- At some point, this person decides that there is a way to keep changing jobs, yet not be seen as a “quitter.”
- A consultant, like a football/baseball coach, has to keep in mind that, from the moment the contract is signed, your expiration date is stamped on your backside.
- With all this in mind, what do you need to do to be a successful consultant?





# What Does One Need for Consulting?

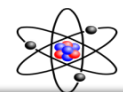
- **Experience.** There is nothing so frustrating as a 25 to 30-year old, running around telling companies how to run their processes. Wait until **you** know something.
- **Diverse background.** Knowing a lot about one thing puts you in the same class and a newly-minted PhD.
- **Several years' salary in the bank or a spouse with a steady job.** Expect to have several lean years at the beginning, so, if you like to eat or have medical insurance, be prepared with a second income.
- ***WANT* to be a consultant.** Being unemployed, waiting for an opening, is *not* consulting... it is just scrabbling to avoid starvation. Commit to the job!





# What Does One Need for Consulting?

- **Get a brand/name.** Prior to the 2008 financial *kerfuffle*, a consultant could just say “consultant,” when asked what he/she did. After 2008, “consultant” became associated with “unemployed.” [Hence “Doramaxx”]
- **Stay current.** In many cases, your breadth of knowledge stops growing as soon as you leave industry. Attend meetings, lectures, and make friends with instrument and software manufacturers.
- **Why instrument/software manufacturers?** 40 years ago, all knowledge (worth knowing) came from texts. BUT, a text takes years to publish. And, new science started to speed up (cont'd)...



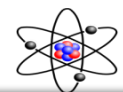


# What Does One Need for Consulting?

- **Why instrument (software) manufacturers?** (cont'd) So, I began to depend on journals, which only take months to get a paper into print. Again, science/technology sped up its pace.

When instrument companies (e.g., Waters) began to hire their customers as sales reps and apps people, the cutting edge work became the application notes they put out. Now, the “good stuff” only took weeks or days to get out there.

Since you aren't generating new technologies (or, aren't allowed to talk about them), get cozy with instrument companies for your info.





# What should be my first steps?

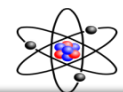
- **Listen & ask questions.** As much as you *think* you may know, your personal experiences are a fraction of the *collective* body of experience.
- **Do some literature searches.** There seems to be a *hubris* attached to the younger generation. There is no necessity, apparently, to see what was done more than 5 years ago and “all I need to know is on Google.”
- **Determine which reported work to believe.** It was “known” that samples needed to be ground, since there was “no way” to correct for particle size variations... until we published (1986) that PS could be measured by DR and, on yeah, Multiple-Scatter Correction (MSC) software...







**Talk (listen!) to the veterans:**  
MLR and FT explained to me, in plain English, by “Aggies!”  
(However, being seen with me shortened *their* careers!)

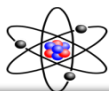




**OK, so Belgium has good beer...**

**(That's why I'm close to a "John.")**

**[As for Woody... He's a great physical chemist hiding in the USDA]**

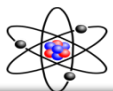






# “Other” voices I listen to..

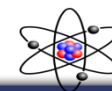
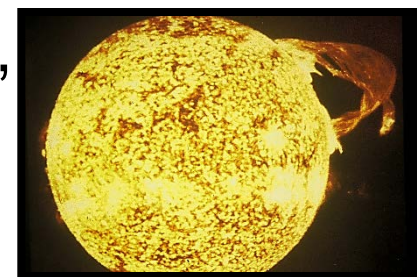
(but, only at night when I’m alone...)





# How can you gather experience?

- **Don't keep doing the same job.** That is also merely “QC.” Where possible, job #2 should be very different from #1, followed by (to quote Monty Python) “something completely different” at jobs #3, #4, etc.
- **Even try different industries.** Aside from decades in pharmaceuticals, I worked in surfactants, polymers, and a summer at a paper mill (even a stint at NASA.)
- **Teach and preach, if you have a chance.** Present papers, teach short courses, and, if you are fortunate, teach formal courses. I never really learned Chemistry (or Physics) until I was privileged to teach them at a college level.





# Make contacts and be visible

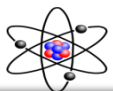
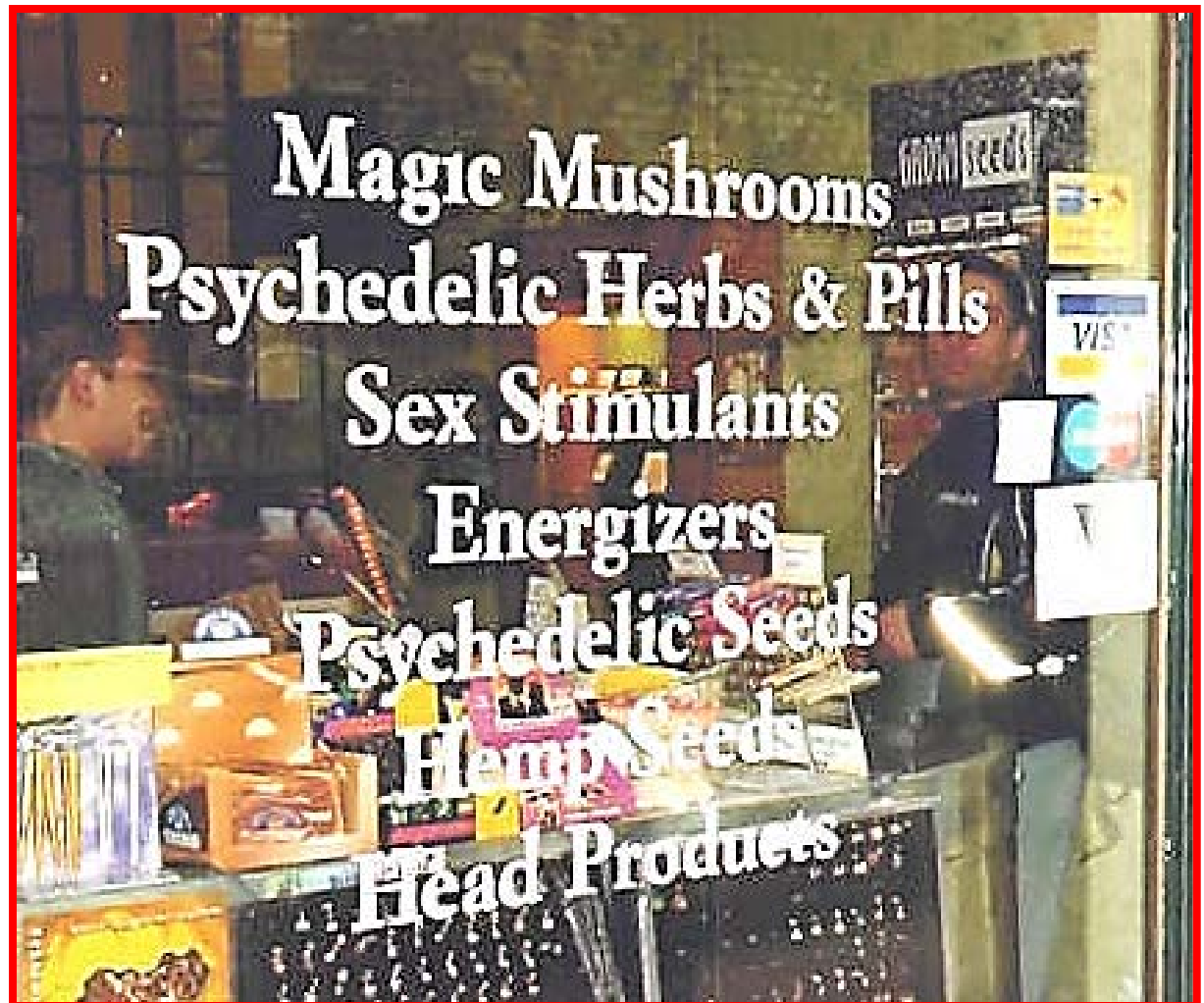
- **One way to attend meetings.** I've missed one PittCon since 1972, despite being at companies who rotate attendees. How? Present a paper or two; gets you to the front of the line, every time.
- **Offer to chair/volunteer.** Conferences are always looking for extra hands. [I always attend PittCon *gratis* because I was always willing to chair an 8:00 am session.]
- **[Lost on millennials]: NETWORK!!** Posting for a job on Monster.com with 20,000 of your closest friends isn't the best way to meet 1) your next boss or, as a consultant, 2) your next client.





Something like NIRS may be used in many industries, however, it pays to specialize in one primary industry...

Distractions  
existed  
everywhere,  
but, I stayed  
the course and  
specialized in  
Pharmaceuticals!





# Don't “mind your own business”

- **Familiarize yourself with all positions:** Apparently not done today, my first position (Ciba, Summit, NJ) included > a month of orientation. I spent a week making tablets, a week in sterile products, a week in clinical packaging, and so on.
- **A consultant needs to be a Swiss Army knife.** If the only tool you have is a hammer, every problem resembles a nail. Be (at least) conversant with many technologies. E.g., on my first long-term consulting gig, I needed to first redo the reference HPLC method before I could even think of developing a NIR method.., it's known as “cross-training” in sports







# Don't fall into the NIH\* trap

\*Not Invented Here

- **Look at ALL disciplines.** While I was working in surfactants, we analyzed sodium lauryl (SLS) sulfate by titrating with benzalkonium chloride (BAC); this gives a ion-pair that displaces a colored dye in a two-phase dropping funnel.
- I moved to a Pharma company that was using BAC as a bacteriostatic aid. They were having trouble using HPLC for potency (it was a surfactant, after all). I suggested we titrate with SLS in a two-phase titration.
- Even though the chemistry was 30 years old, it was *beneath* pharmaceutical chemists to read another disciplines' journals or search their methods.



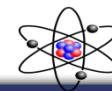




# Don't fall into the NIH\* trap

Borrow from everywhere; try anything  
(It takes a village)

- **NIRS “couldn’t be used for qualitative analyses”** was “common knowledge” in 1983, so I had no chance in succeeding at Sandoz using NIR for incoming raw materials.
- **So, when I went to Technicon, it was not supposed to turn out good.** Fortunately, I hooked up with Dr. Howard Mark (a.k.a., “good old Howie”) and he never paid attention to “common knowledge.”
- **Howie had a dream: Mahalanobis distances.** I became his alpha and beta test site and we got software updates weekly. By 1984, we had FDA permission to use it and by 1985, we were testing 100% of all containers entering our facility

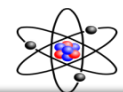




## Spoiler Alert:

It wasn't until **1987**, two years after we started doing qualitative analyses, that the first Principal Components and Partial Least Squares software were commercially available!!!!

**YES, TWO YEARS!** Largely, because we went outside the box and tried what was against “common knowledge,” tapping an expert...

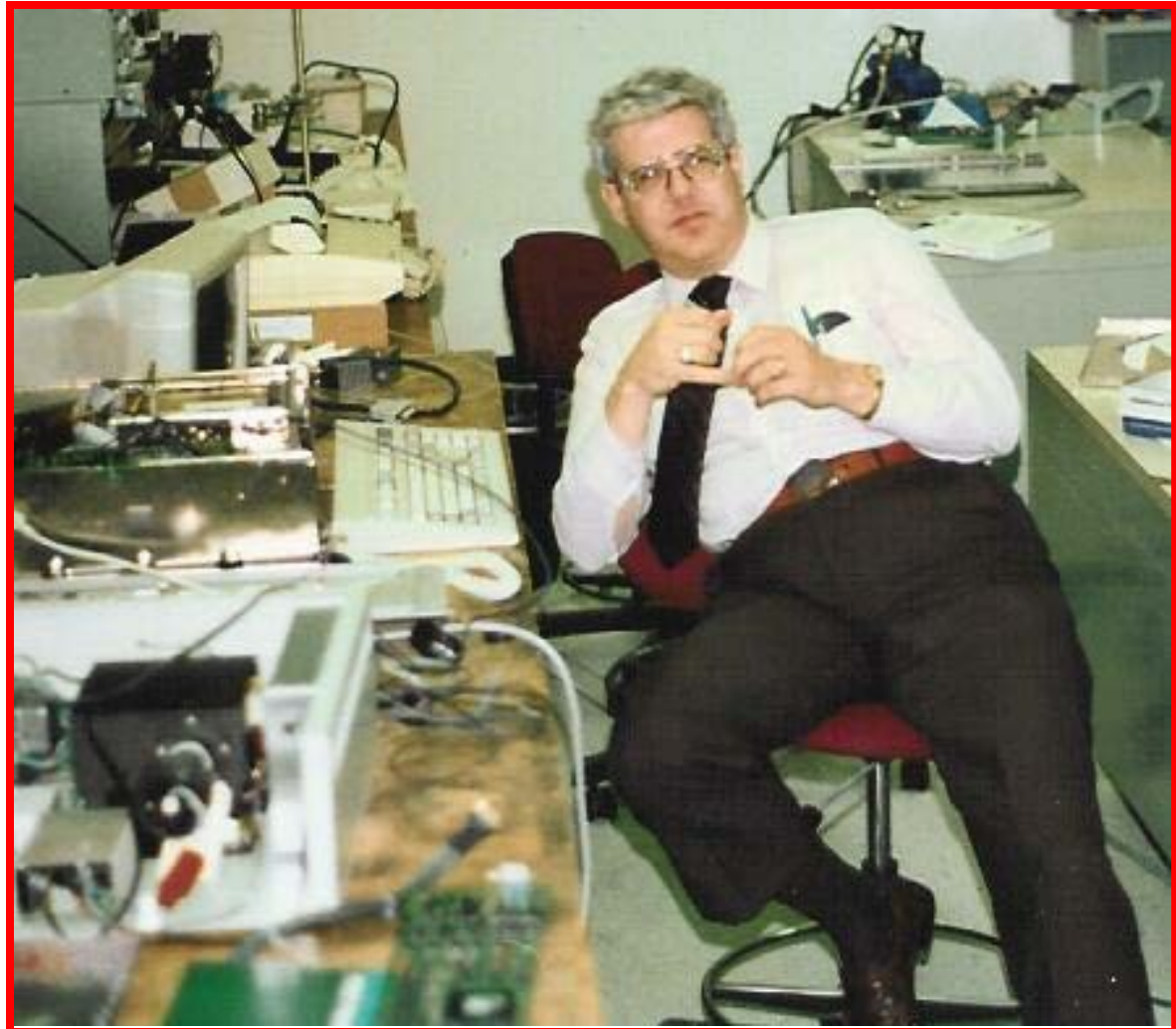




# Dr. Howard (Howie) Mark:

Hard-working statistician/chemist who designed the Mahalanobis distance software for my qualitative work!

(Changed MY life!)





**Me: Howie, what's  
the secret to your  
success?**

**Howie:**

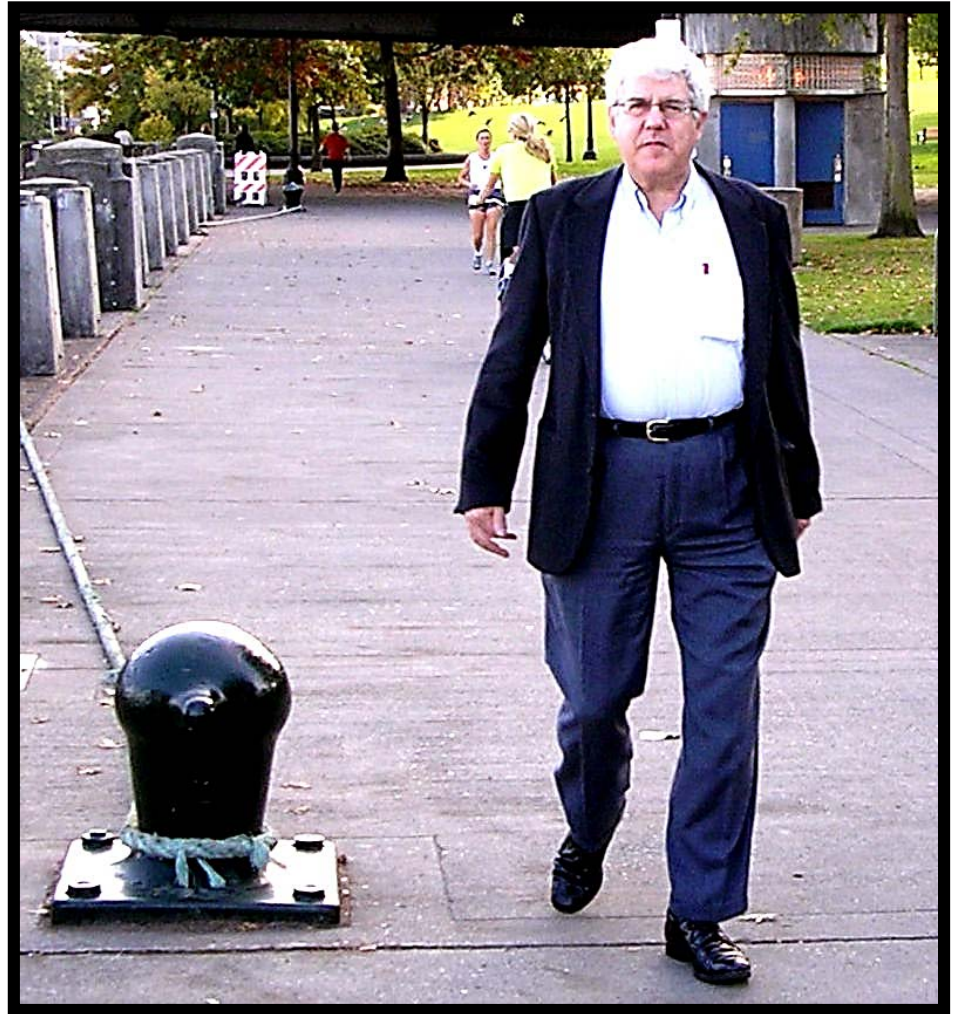






# Howie with his Muse...

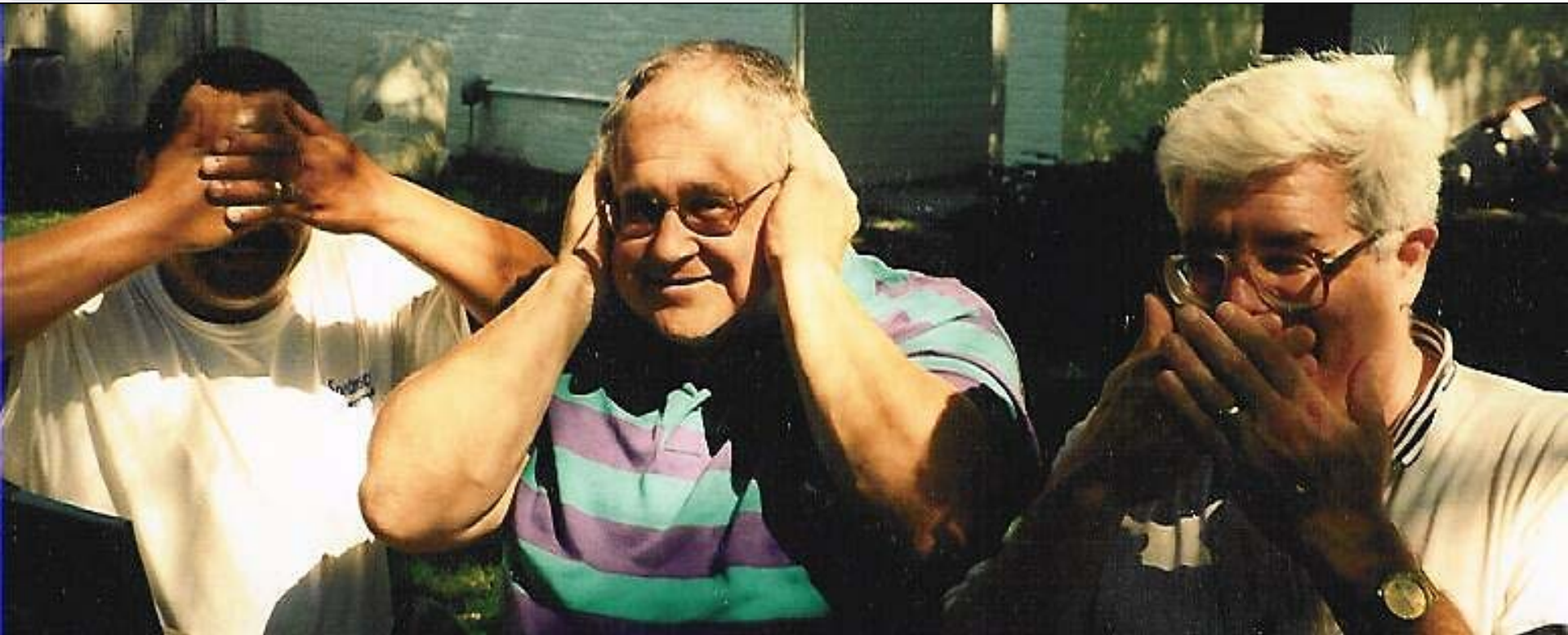
His pet robot: R<sup>2</sup>D<sup>\*</sup>





# See, Hear, Speak NIRS...

Be willing to share your knowledge

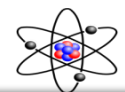






# Also, Kudos to Jack Carroll:

My marketing mentor, helping me “dress for success.”





# My Life has Become Interesting

- Since there were nearly no texts on NIR, I was fortunate to hook up with Don Burns and produce the Handbook of NIRS Analysis (4<sup>th</sup> edition in process), and some other chapters and books...all with the assistance of sharp scientists... not a lot of money, but looks good on my resume
- I've been fortunate enough to be teaching (college level) since 1979 (pre-NIR), doing short courses (31 countries and counting), presenting papers, etc. All of which gave me the visibility to be considered a serious consultant
- Oh, yeah... I even won an award (next page, please)





My award talk; serious, as usual

## Through the Looking Glass: The Adventures of Emil in Wonderland



**Emil W. Ciurczak**  
EAS NIR Award Talk  
November, 2004  
Somerset, NJ  
[emil@Ciurczak.com](mailto:emil@Ciurczak.com)



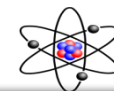
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# Some Guiding Principles

(At least for me)

- If you have a choice between being true to your beliefs and education and experiences and keeping a job, being true to yourself comes first. [See the next slide.]
- You will almost always do a better job and have a happier client, if the work is interesting and worthwhile.
- There may be a very large difference between what a client wants and what he needs. Your first job is to discern which he is willing to support.
- DO NOT try to milk a job. If the analysis will not work, it is in your best interest to inform the client, ASAP. You may lose *that* job, but will be more likely to be called back and get a better YELP review.





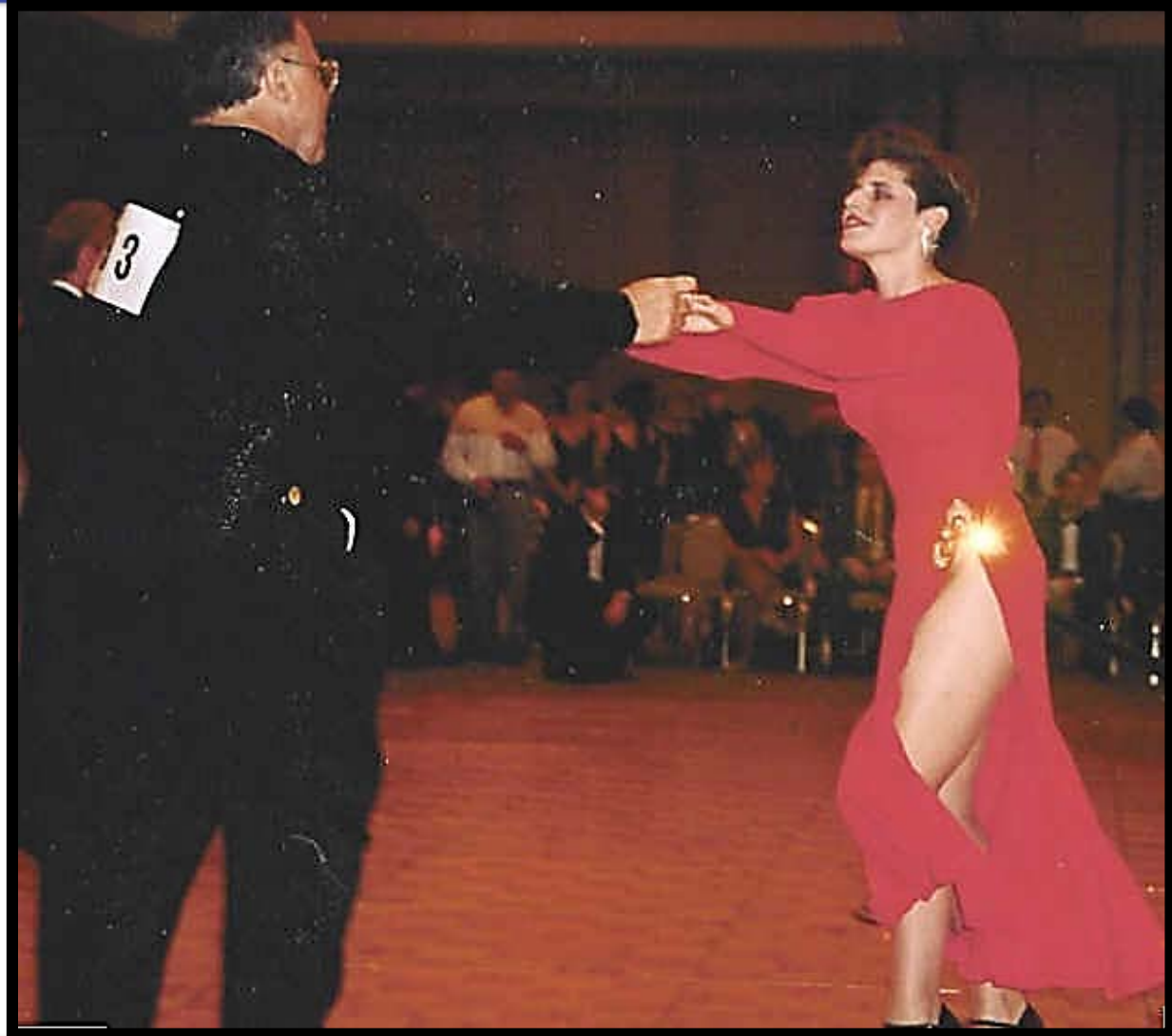
**Some have considered me a bit of a rebel..  
(Go figure! I don't see it!)**





# However, I can try to be traditional

**We both wash up  
pretty good...**





# I found that family was also important in my journey

## My Fraternity “*Brother*\*”

(she was a dance instructor)

\*Alpha Phi Omega is a co-ed  
*Service* fraternity, FYI.  
Bill Clinton is also a brother,  
but Mary Lynn is prettier

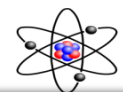
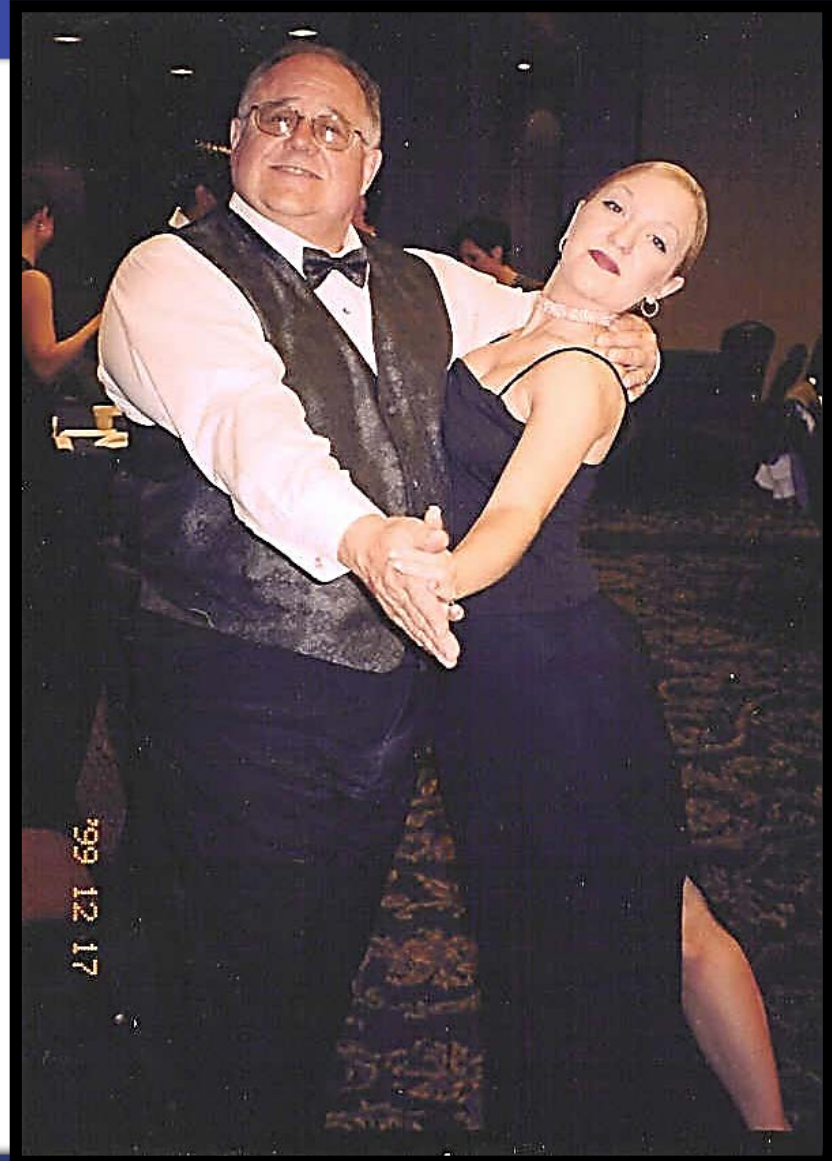






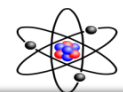
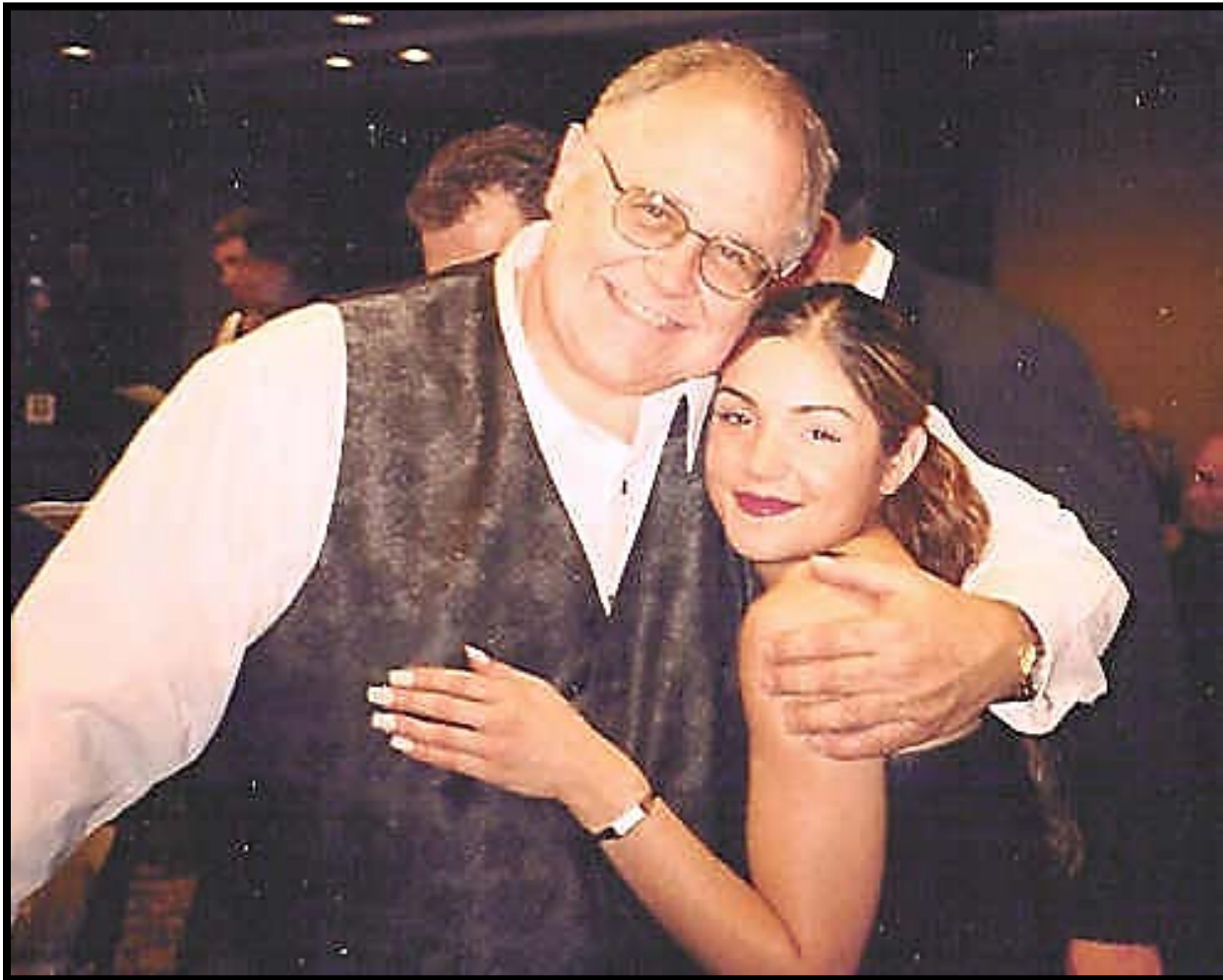
**But, remember, I really only dance for  
intellectual stimulation..**

**Do I look stimulated, yet?**





**And, of course, polite conversation...**



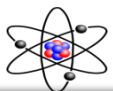
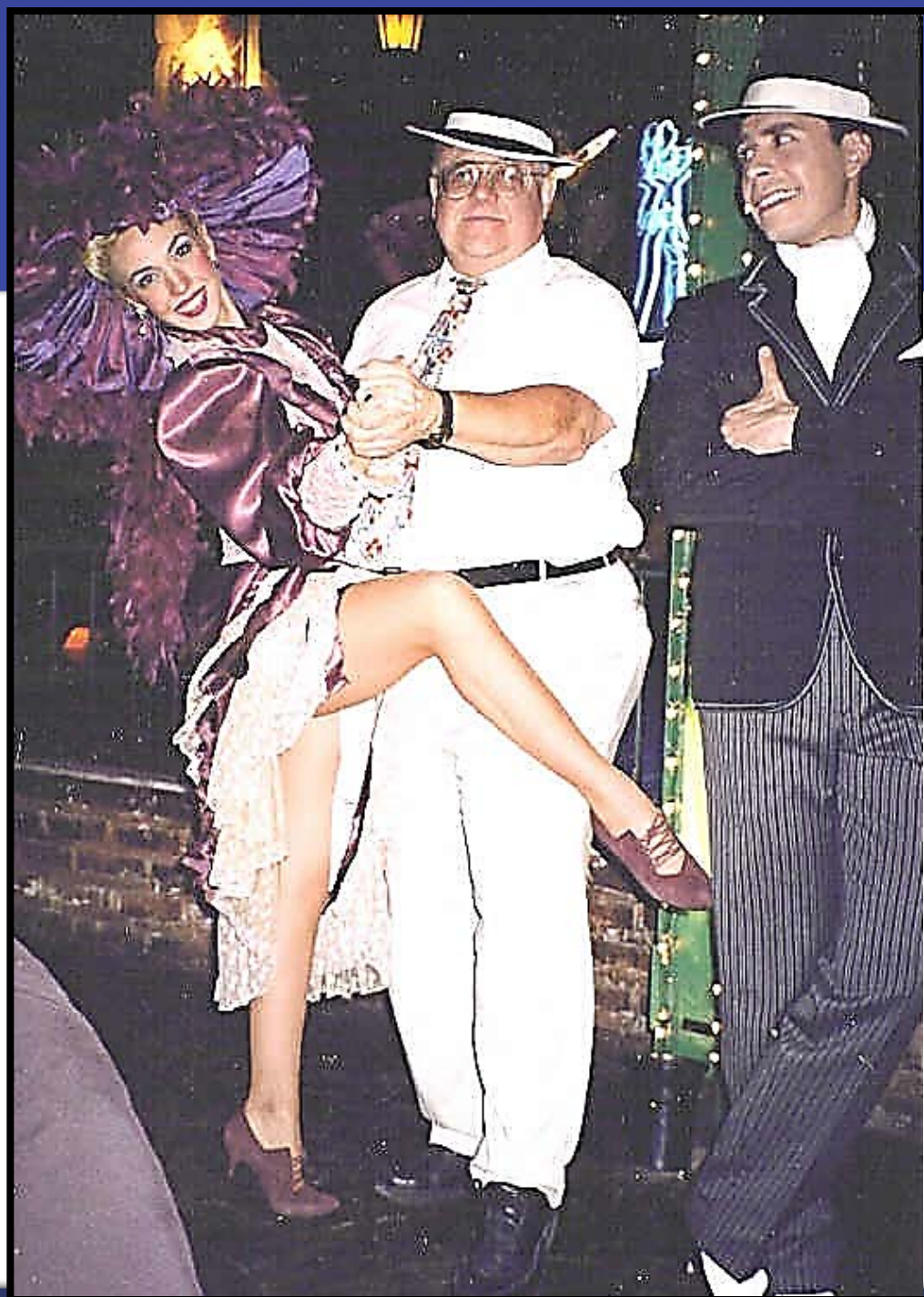




**I danced wherever  
I went:**

**They loved me  
in Buenos Aires**

Even presented a paper or two  
at the conference that paid my way

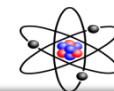






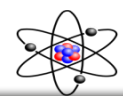
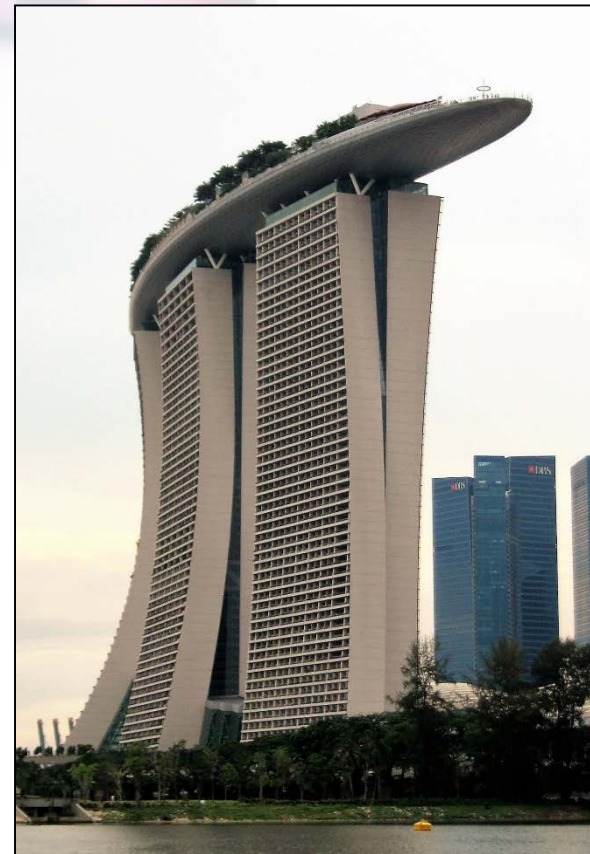
## Another Good Tip: Don't always expect to be Paid...

- By saying “yes” to presenting or giving a workshop at expenses-paid-only meetings, you still get visibility and leads.
- Numerous courses (“minimum wage” jobs) have led to consulting jobs, where the pay was a “tad” better.
- So, keep your passport up-to-date
- Now, look at some of the neat places I got to visit...





# I Gave Some Courses in Singapore





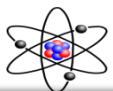


# And a Short Course in Bulgaria





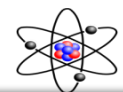
# United Arab Emirates was an interesting locale







# And in Sao Paulo, Brazil





# I even got three trips to China

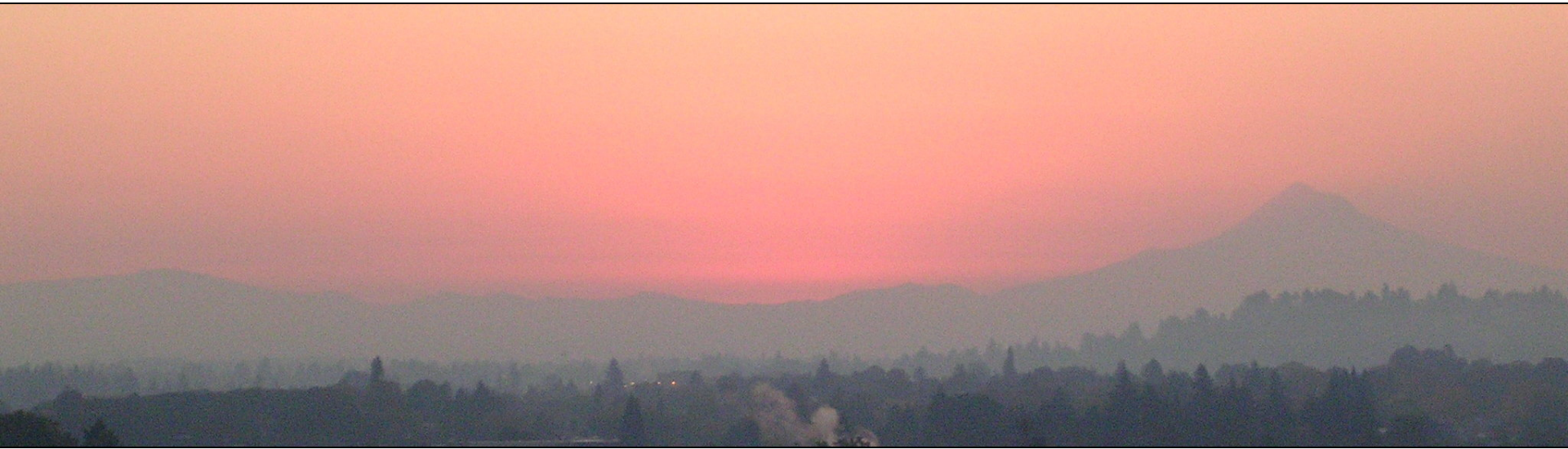






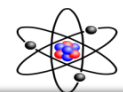
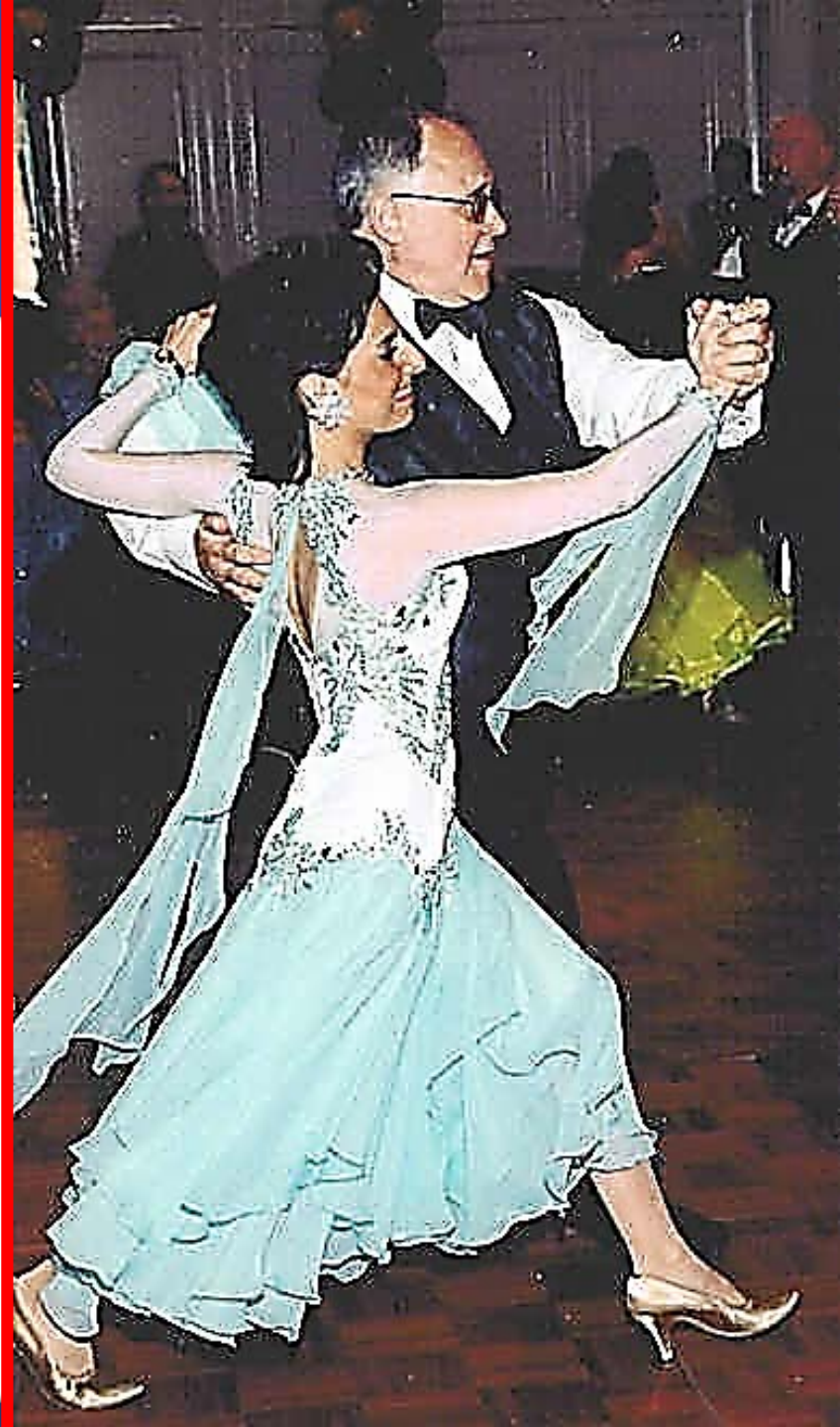
# Mt. St. Helens, at dawn.

Nothing to do with my talk, but was pretty view at FACSS, in  
Portland, OR





**Thanks for your  
attention but,  
  
I gotta run now**







# Any Questions?



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